

**ABSTRACT OF DISCLOSURE**

A data modulation method and apparatus for recording data on a disc-type recording medium, a sync code insertion method and apparatus using the same, and a recording medium for recording programs executing the methods. The method, which inserts a sync code into data recorded on a disc-type recording medium, includes inserting the sync code into an input data stream, wherein the sync code includes one pattern breaking the maximum run and other patterns aligned before and after the one pattern, the length of the other patterns being the same as or larger than a value obtained by dividing the outermost circumference radius of the disc-type recording medium by the innermost circumference radius. The sync code insertion method uses a sync code pattern made in consideration of the radii of the innermost and outermost circumferences of a disc on which data is recorded. Accordingly, even if a disc radius decreases and a ratio of the innermost circumference radius to the outermost circumference radius increases, it is possible to precisely detect a sync signal from and easily generate a phase locked loop (PLL) clock at both the innermost and outermost circumferences.